

An overview of dry fish landings and trade at Visakhapatnam Fishing Harbour

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Fish drying is an age old practice and was adopted as a practical method of preserving fish that have not been immediately consumed or sold in the fresh market. Improved fishing techniques and infrastructure resulted in increased fish catch, better marketing, processing and curing facilities. The advent of multiday trawling at the Visakhapatnam Fishing Harbour further boosted the availability of fish and its processing into value added products. However, drying still remains the cheapest and popular mode of fish preservation. Dried products are in great demand both within and outside the country and form an important source of protein rich food in various forms. Fish drying over the years, has grown from a subsistence kind of occupation to a full-fledged flourishing business. Dried fish now caters to different sectors such as quality fish/prawns for human consumption, and low value fishes for the

preparation of fish feed as well as poultry feed. At Visakhapatnam Fishing Harbour (Fig.1), the annual production of dry fish ranged from 6- 9% (2225 - 4831 t) of the total fish catch during 2005-2009. Species



Fig.1. Dry fish yard at Visakhapatnam Fishing Harbour

composition of the dry fish produced at Visakhapatnam Fishing Harbour (July - December 2009) is summarised in Table 1.

Table 1. Species composition (%) of dry fish at Visakhapatnam Fishing Harbour during July- December, 2009

Species	%
<i>Trichiurus lepturus</i>	17.8
<i>Sardinella longiceps</i>	5.4
<i>Rastrelliger kanagurta</i>	10.8
<i>Encrasicholina</i> sp.	6.9
<i>Decapterus</i> sp.	6.5
<i>Pellona</i> sp.	1.0
<i>Thryssa</i> sp.	2.2
<i>Scomberoides</i> sp.	2.0
Other carangids	3.0
<i>Sphyraena jello</i>	0.3
<i>Nemipterus</i> sp.	0.6
Other perches	1.7
<i>Saurida</i> sp.	6.1
<i>Upeneus</i> sp.	3.2
<i>Leiognathus</i> sp.	3.5
<i>Secutor</i> sp.	3.5
<i>Gazza</i> sp.	3.5
<i>Johnius</i> sp.	8.9
<i>Tachysurus</i> sp.	2.3
<i>Cynoglossus</i> sp.	1.0
<i>Drepane</i> sp.	0.6
<i>Acetus</i> sp.	2.0
<i>Solenocera</i> sp.	3.3
Small crabs	0.3
Trash fishes	2.0
<i>Parastromateus</i> sp.	0.7
<i>Scomberomorus guttatus</i>	0.9

The process of drying involves enzymatic or microbial activity on the fresh fish in the presence or absence of salt. The dried product retains most of the nutrient goodness of fresh fish with higher concentrations of proteins, vitamins, iron and calcium. When packed and stored properly, dry fish has a shelf life of more than two years. Dried fish prepared for human consumption is in great demand both in the coastal as well as interior areas. There is a good export market too available for dry fish. In the interior areas, dry fish form an important source of animal protein supplement which is consumed as a main dish or used as a flavouring agent in combination with other staple food items. Even in the coastal region where

fresh fish is in abundance, small shrimps such as *Acetes* (Fig. 2), whitebait, flatfishes, silverbellies (Fig. 3), small scads, lizardfish and sciaenids are preferred in the dried form. However, all species of dry fish are in great demand during the fishing ban period when there is shortage of fresh fish in the market. Care is taken to maintain hygienic conditions when the fish are being dried for human consumption.



Fig. 2. Dried *Acetes* at Visakhapatnam Fishing Harbour



Fig. 3. Dried silverbellies at Visakhapatnam Fishing Harbour

The fishes for this purpose are generally salt cured and then dried on clean cement platforms made especially for this purpose or on coir/palm mats on the beach close to the landing centre. Depending on the fish used, salt curing is done for a day or two in big cisterns. The fish is then drained and spread as a single layer for sun drying. Drying hours again depend on the consumer's requirement. Partially dried fish is relished in some countries and in some parts of India too. For this, the cured fish is drained and dried for 4 to 5 h and then packed in baskets and sent for marketing. In fully dried products, the cured and drained fish is sun dried for 24 to 48 h. This is then packed in baskets, gunny bags or boxes (Fig. 4) and sold in the market. Ribbonfish and mackerel are the two resources which have a good market price both

in the wet and dried condition. The ribbonfish has a great demand in the export market, but only the large sized clean and undamaged fishes are accepted by the exporters. The smaller and damaged ribbonfishes are generally dried. Mackerel too is in good demand in the fresh form, but when huge quantities are landed by the trawlers, major part of the catch is sent for drying (Fig. 5).



Fig. 4. Dry fish packed in gunny bags and baskets



Fig. 5. Dried mackerel at Visakhapatnam Fishing Harbour

Trash and low value fish drying

The trash fish brought to the shore by trawlers forms nearly 2% of the total marine fish catch and the entire trash is used only in the dried form as fish meal which is used for fish feed production. At Visakhapatnam, the trash after auctioning is dried for some hours by mixing minimum quantity of salt and transported to Thimapuram beach where it is dried before being used for the preparation of fish meal. The low value fishes generally referred to as trash, include squilla, small sized silver bellies, clupeids, carangids, crabs, perches *etc*, are directly sun dried on the sandy beach without any sort of processing. These fishes are dried for a day or two and then packed into gunny bags and transported to the fish meal plants where they are further processed. The oil is extracted separately and the residue

powdered to get the fishmeal. The fish meal is the main protein component in the preparation of aquafeed, poultry feed and pet feed. The residual slurry is a very good source of manure in land based agriculture. The fish meal is rich in protein and a good source of minerals; therefore it is in great demand for the preparation of feeds and food supplement. The processed fishmeal powder is also marketed as a fish protein concentrate which is used as food additives to enrich and enhance the nutritional value of the diet. The present market rate of dry fish at Visakhapatnam Harbour is given in Table 2.

Table 2. Price of different dry fishes at the Visakhapatnam fishing harbour

Fish group	Price (₹ per kg)
Ribbonfish	60 - 80
Seerfish	300 - 500
Whitebait	100 - 120
Mackerel	50 - 60
Scads	15 - 20
Other carangids	30 - 60
Sardines	15 - 20
Black pomfret	200 - 250
Lizardfish	60 - 80
Goatfish	20 - 30
Croakers	40 - 60
Silverbellies	20 - 30
<i>Thryssa</i>	20 - 30
Shrimps	80 - 100
<i>Acetes</i>	40 - 50
Trash	6 - 14

Quality fish drying

Fishes like seerfish (*Scomberomorus guttatus*) and pomfrets (mainly *Parastromateus niger*) which have very high commercial value in the fresh fish market are also dried under situations of huge landings of small sized fishes, shortage of ice and slash in the price of fish in the market *etc*. At Visakhapatnam Fishing Harbour during the months of August and September, seerfish juvenile landings is high and some quantity of these fishes are seen to be dried in the drying yard of the harbour (Fig. 6). It is also observed that seerfish of 1/2 kg size when dried, fetches 25-50% more economic value than that of wet fish.

Onboard fish drying

Fish drying onboard the fishing vessels itself has become popular. Fish dried in such a way is cleaner and devoid of sand and other unwanted materials which is observed in the case of land drying. The



Fig. 6. Dried seerfish at Visakhapatnam Fishing Harbour

fishes that are to be dried onboard are salted, strung in the form of long garlands and then hung on the deck for drying. Rows of strung fishes are displayed in the form of tents (Fig. 7). The space available above the cabin is also effectively used for drying



Fig. 7. Rows of strung fishes displayed in the form of tents, onboard fishing trawler

the fish (Fig. 8). On reaching the shore, the dried fish is packed and auctioned as is the system followed for fresh fish brought by the units. This has a double advantage for the boat owners; these fishes do not unnecessarily use space in the fish hold and also save on the cost of ice to be used to keep the fish in fresh condition. The fishes that are generally



Fig. 8. Drying of excess fish above the cabin of fishing boat

dried onboard include whitebait, silverbellies, ribbonfish, scads, flatfishes, sciaenids and *Thryssa* (Fig. 9).



Fig. 9. Ribbonfish dried onboard fishing vessel

Dry fish trade

The fish dried at this harbour is sent to the local fish market, interior markets of Andhra Pradesh, markets of adjacent states (Tamil Nadu, Karnataka and Orissa) and north east states and also to several other countries (Sri Lanka, Singapore and Burma). In Andhra Pradesh, Nakapalli is the dominant dry fish trading centre. Hygienically dried and well packaged dried fish are sold at attractive prices in the supermarkets in India as well as in gulf countries fetching a good income for the fisher folk of Visakhapatnam. There is still scope to increase the production and demand of dry fish. Another important aspect of dry fish trade is proper distribution of the dry fish packets within the marketing chain. The marketing structure should aim at ensuring remunerative price to the producer of dry fish and narrow down the price spread between the producer and the consumer.

Fish drying at Visakhapatnam has undergone a sea change in the recent years. Earnest efforts are made to keep the quality of the dry fish meant for human consumption. Special drying platforms have been constructed for drying purpose to prevent contamination of sand and other pollutants. The locals have also been exposed to the use of drying racks and the use of both sun and electrical dryers for hygienic and effective drying of fish. The trash after auctioning is transported to Thimapuram and Bhimli beach where it is beach dried before being used for the preparation of fish meal.

Fish drying and marketing is generally the forte of the women folk though a few men have now

entered the business. The activity that started off as a subsistence form of occupation has now developed into an organised sector providing employment and economic security to those engaged in this activity at Visakhapatnam Fishing Harbour. These women are engaged fulltime in procuring, curing, drying, packing and marketing of dried fish at Visakhapatnam by adopting certain hygienic and marketing strategies. Further popularisation of drying racks and

identifying separate fish drying yards near to the fishing harbour will go a long way in improving the quality of the fish dried and also increased utilisation of dry fish for human consumption. This in turn will increase the income of the fisher folk engaged in fish drying, generate interest among others to take up fish drying activity as fulltime employment and in general improve the living standards of the coastal fisher folk.